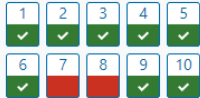


QUIZ NAVIGATION



Rose Wang



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Started on	Friday, 11 October 2024, 3:33 AM
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Completed on	Friday, 11 October 2024, 3:44 AM
Time taken	11 mins 3 secs
Marks	8.0/10.0
Grade	80.0 out of 100.0

Question 1

ID: 50107

Correct

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KC is a 4-year-old male who presents to your clinic with his father. His father tells you that for the past 6 months, KC has been extremely hyperactive in their home. He always seems like he is "on the go" and constantly climbs and jumps off of the furniture. KC's father often has to remind him not to interrupt others when they are speaking. His teacher says that he is very talkative at school and often has trouble remaining seated when he is told to do so. He also struggles to wait for his turn when lining up to go to the bathroom or to get a drink from the water fountain. KC's father has heard that some children are diagnosed with attention-deficit hyperactivity disorder (ADHD) and are prescribed medication to help relieve symptoms.

Which of the following treatment options is the most appropriate for KC at this time?

Select one:

- ☐ a. Stimulants ✗
- ☐ b. Atomoxetine ✗
- ☐ c. Guanfacine ✗
- ☒ d. Non-pharmacological treatment options ✓

Rose Wang (ID:113212) this answer is correct. Non-pharmacological treatment options are recommended first-line for ADHD in patients who are under age 6.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-deficit hyperactivity disorder**LEARNING OBJECTIVE:**

Understand age restrictions for commonly used medications used to treat ADHD.

BACKGROUND:

Non-pharmacological options for the treatment of ADHD include:

- Behavioural therapies that are designed to minimize negative behaviours and promote positive ones
- Social skills, mindfulness and parent-/teacher-management training may increase confidence and reduce stress for parents (management of behaviour by way of parent or teacher training alone is considered first-line in children aged 4 to 6 years old)
- Evidence for diets eliminating foods or additives is not robust enough to make any specific dietary recommendations
- Exercise interventions can cause an improvement in core ADHD symptoms, a reduction in anxiety, and improved cognitive functioning

RATIONALE:**Correct Answer:**

- **Non-pharmacological treatment options** - Non-pharmacological treatment options are recommended first-line for ADHD in patients who are under age 6.

Incorrect Answers:

- **Stimulants** - Stimulants are not recommended under the age of 6.
- **Atomoxetine** - Atomoxetine is not recommended under the age of 6.
- **Guanfacine** - Guanfacine is not recommended under the age of 6.

TAKEAWAY/KEY POINTS:

Non-pharmacological treatment options are recommended first-line for ADHD in patients who are under age 6.

REFERENCE:

[1] CADDRA - Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

The correct answer is: Non-pharmacological treatment options

Question 2

ID: 50113

Correct

Flag question

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PD is an 8-year-old female who arrives at your pharmacy with her mother. Her mother had requested an appointment with PD's pediatrician because PD has been having difficulties paying attention in school. At a recent parent-teacher meeting, PD's teacher reported that she is often a distraction to other students because of her excessive talking. PD finds it difficult to pay attention to lessons and has been performing poorly on assessments. At home, PD struggles to complete her homework and is easily distracted by her electronic devices. PD's mother has been spending a lot of extra time trying to get her to focus on her schoolwork. PD's pediatrician has diagnosed her with ADHD and would like to initiate a starting dose of methylphenidate (Biphentin®) 10 mg PO daily in the morning and increase the dose weekly until her symptoms are under control.

Which of the following is **NOT** a goal of therapy for the treatment of PD's ADHD?

Select one:

- ☐ a. Decrease or eliminate ADHD symptoms ✗
- ☐ b. Improve performance in school ✗
- ☒ c. Provide respite care for parents ✓
- ☐ d. Improve social functioning ✗

Rose Wang (ID:113212) this answer is correct. Although effective management of ADHD may help provide parents with relief, it is not a goal of therapy for ADHD.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder (ADHD)

LEARNING OBJECTIVE:

Identify the goals of therapy for ADHD.

BACKGROUND:

Goals of therapy for ADHD include:

- Decrease/eliminate core ADHD symptoms (note: complete elimination of ADHD symptoms is often not feasible even with effective pharmacological therapy; in this case, a reduction in symptoms would be considered a successful intervention)
- Improve both academic and behavioural performance
- Minimize adverse effects of medications
- Improve social functioning and self-esteem
- Improve quality of life
- Prevent or reduce impact of comorbidities

RATIONALE:**Correct Answer:**

- **Provide respite care for parents** - Although effective management of ADHD may help provide parents with relief, it is not a goal of therapy for ADHD.

Incorrect Answers:

- **Decrease or eliminate ADHD symptoms** - Decreasing or eliminating ADHD symptoms is a goal of therapy for ADHD.
- **Improve performance in school** - Improving academic and behavioural performance is a goal of therapy for ADHD.
- **Improve social functioning** - Improving social functioning is a goal of therapy for ADHD.

TAKEAWAY/KEY POINTS:

The goals of therapy for ADHD include decreasing/eliminating core ADHD symptoms, improving both academic and behavioural performance, minimizing adverse effects of medications, improving social functioning and self-esteem, improving quality of life and preventing or reducing the impact of comorbidities. Complete elimination of ADHD symptoms is often not feasible even with effective pharmacological therapy. In this scenario, a reduction in ADHD symptoms would be considered a successful intervention. Although ADHD treatment may help provide parents with relief, it is not a goal of therapy for ADHD.

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Provide respite care for parents

Question 3

Which of the following statements is **FALSE** regarding pharmacological therapy for ADHD?

ID: 50117

Correct

Flag question

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Select one:

- ☐ a. Atomoxetine is considered a second-line treatment option for ADHD. ✖
- ☒ b. Long-acting and short-acting stimulants are considered first-line treatment options for ADHD. ✔
- ☐ c. Guanfacine is considered a second-line treatment option for ADHD. ✖
- ☐ d. Bupropion is considered a third-line treatment option for ADHD. ✖

Rose Wang (ID:113212) this answer is correct. Long-acting and short-acting stimulants are comparable in efficacy; however, only long-acting stimulants are considered first-line due to increased compliance, less potential for abuse, and minimal rebound hyperactivity.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder

LEARNING OBJECTIVE:

Identify the first-, second-, and third-line treatment options for ADHD.

BACKGROUND:

First-line treatment options for ADHD include amphetamine-based and methylphenidate-based stimulants. Stimulants have been shown to be effective in improving core symptoms of ADHD in children 6 years of age and older. Amphetamine-based stimulants include dextroamphetamine (Dexedrine®), mixed amphetamine salts (Adderall XR®), and lisdexamfetamine (Vyvanse®). Methylphenidate-based stimulants include Ritalin®, Ritalin SR®, Concerta®, Focquest®, and Biphentin®. According to the CADDRA 2018 guidelines, stimulants, regardless of their active ingredient or formulation, are comparable in efficacy. The primary differences between stimulants are their onset and duration of action as well as their formulations. Long-acting stimulants are preferred over short-acting due to increased compliance (only once-daily dosing where doses do not have to be administered during school hours), less potential for abuse and diversion, and minimal rebound hyperactivity (hyperactivity due to wearing off of stimulant). In some cases, short-acting agents may be preferred as they allow for flexible dosing. Second-line treatment options for ADHD include short-/intermediate-acting stimulants as well as non-stimulants such as atomoxetine (Strattera®) and guanfacine (Intuniv XR®). Atomoxetine may be preferred over stimulants in patients who are not able to tolerate or respond to stimulants, who have other comorbid conditions (such as tics disorder, Tourette's syndrome, anxiety), or who are at risk of abuse/diversion. Guanfacine may be preferred in those with comorbid oppositional defiant disorder. Moreover, it can be considered in patients at risk of abuse/diversion. Third-line treatment options for ADHD include clonidine, desipramine, imipramine, nortriptyline, bupropion, and modafinil. Typically, third-line agents are only considered in treatment-resistant cases.

RATIONALE:**Correct Answer:**

- **Long-acting and short-acting stimulants are considered first-line treatment options for ADHD.** - Long-acting and short-acting stimulants are comparable in efficacy; however, only long-acting stimulants are considered first-line due to increased compliance, less potential for abuse, and minimal rebound hyperactivity.

Incorrect Answers:

- **Atomoxetine is considered a second-line treatment option for ADHD.** - Atomoxetine is considered a second-line treatment option for ADHD.
- **Guanfacine is considered a second-line treatment option for ADHD.** - Guanfacine is considered a second-line treatment option for ADHD.
- **Bupropion is considered a third-line treatment option for ADHD.** - Bupropion is considered a third-line treatment option for ADHD.

TAKEAWAY/KEY POINTS:

Long-acting stimulants are considered first-line treatment, short-/intermediate-acting stimulants, atomoxetine, and guanfacine are considered second-line treatment, and clonidine, desipramine, imipramine, nortriptyline, bupropion, and modafinil are considered third-line treatment for ADHD.

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Long-acting and short-acting stimulants are considered first-line treatment options for ADHD.

Question 4

ID: 50123

Correct

Flag question

Send Feedback

You are a pharmacist working at the pediatric outpatient clinic at the local hospital. YG is a 7-year-old male who has an appointment with one of the pediatricians today to discuss his ADHD treatment. One week ago, he was diagnosed with ADHD and was initiated on a starting dose of methylphenidate sustained-release tablets (Ritalin SR®) 20 mg PO daily in the morning. His mother says that YG has been having difficulty swallowing the medication and has yet to receive any doses. She mentions that the pharmacist on duty at the time of dispensing warned her that this medication must be swallowed whole and cannot be crushed or chewed. She has been looking at information online and has learned that there may be other options that are more appropriate for her son.

Which of the following statements is **NOT** an appropriate recommendation to make to YG's mother?

Select one:

- ☐ Lisdexamfetamine (Vyvanse®) capsules can be opened and diluted in water ✗
- ☐ Methylphenidate (Concerta®) tablets should **NOT** be altered ✗
- ☒ Methylphenidate (Foquest®) capsules cannot be opened ✓
- ☐ Dextroamphetamine (Dexedrine®) immediate-release tablets cannot be crushed ✗

Rose Wang (ID:113212) this answer is correct. Methylphenidate (Foquest®) capsules can be opened but granules can be sprinkled on food.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder

LEARNING OBJECTIVE:

Compare administration techniques of various stimulants used for ADHD.

BACKGROUND:

According to the CADDRA 2018 guidelines, stimulants, regardless of their active ingredient or formulation, are comparable in efficacy. One of the primary differences between the various stimulants is their formulation. Significant portions of the ADHD population are children who are unable to swallow tablets/capsules. This has resulted in alternative administration techniques being designed for ADHD medications.

- Mixed amphetamine salts (Adderall®) extended-release capsules can be opened and contents sprinkled onto soft food (e.g. applesauce, ice cream, yogurt) that must be eaten immediately without chewing
- Methylphenidate (Biphentin®) capsules can be opened and contents sprinkled onto soft foods (e.g. applesauce, ice cream, yogurt)
- Methylphenidate (Concerta®) tablets must be swallowed whole (cannot be crushed, opened, or chewed)
- Dextroamphetamine (Dexedrine®) immediate-release tablets cannot be crushed
- Dextroamphetamine (Dexedrine®) delayed-release spansules should be swallowed whole
- Methylphenidate (Foquest®) capsules can be opened and contents sprinkled onto foods
- Methylphenidate (Ritalin®) immediate-release tablets can be crushed
- Methylphenidate (Ritalin®) sustained-release tablets must be swallowed whole
- Lisdexamfetamine (Vyvanse®) capsules can be opened and contents diluted in liquid or sprinkled onto soft foods (e.g. applesauce, ice cream, yogurt)
- Lisdexamfetamine (Vyvanse®) chewable tablets must be chewed thoroughly

RATIONALE:

Correct Answer:

- **Methylphenidate (Foquest®) capsules cannot be opened** - Methylphenidate (Foquest®) capsules can be opened but granules must be sprinkled on food.

Incorrect Answers:

- **Lisdexamfetamine (Vyvanse®) capsules can be opened and diluted in water** - Lisdexamfetamine (Vyvanse®) capsules can be opened and contents diluted in liquid.
- **Methylphenidate (Concerta®) tablets should NOT be altered** - Methylphenidate (Concerta®) tablets have an osmotic controlled-release oral delivery system (OROS) and cannot be crushed, opened, or chewed.
- **Dextroamphetamine (Dexedrine®) immediate-release tablets cannot be crushed** - Dextroamphetamine (Dexedrine®) immediate-release tablets cannot be crushed.

TAKEAWAY/KEY POINTS:

Stimulants used for the treatment of ADHD come in many formulations. Methylphenidate (Concerta®) tablets have an osmotic-controlled release oral delivery system (OROS) and cannot be crushed, opened, or chewed. Dextroamphetamine (Dexedrine®) immediate-release tablets cannot be crushed. Methylphenidate (Foquest®) capsules can be opened but granules must be sprinkled on food. Lisdexamfetamine (Vyvanse®) capsules can be opened and contents diluted in liquid.

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Methylphenidate (Foquest®) capsules cannot be opened

Question 5

ID: 50124

Correct

Flag question

Send Feedback

PJ is a 12-year-old male recently diagnosed with ADHD about one month ago. His family physician initiated him on mixed amphetamine salts (Adderall XR®) 10 mg PO daily four weeks ago and has increased the dose by 5 mg every week. PJ is currently taking 30 mg PO daily in the morning, the maximum dose that is recommended for his age group. He is adherent to his medication and has not missed a single dose. He usually wakes up late in the mornings and misses breakfast but always takes his medication with a glass of orange juice before leaving for school. PJ and his family have not noticed any improvements in his ADHD symptoms since he started the medication. He continues to find it difficult to focus during classes and is still doing poorly on assessments. PJ does not report any side effects secondary to the medication. PJ's mother asks you if you have any suggestions.

What is the most appropriate treatment suggestion that you can make to PJ's mother at this time?

Select one:

- ☐ a. Increase the dose of mixed amphetamine salts (Adderall®) by 5 mg ✗
- ☐ b. Switch to dextroamphetamine (Dexedrine®) delayed-release spansules ✗
- ☐ c. Add guanfacine to mixed amphetamine salts (Adderall®) ✗
- ☒ d. Take mixed amphetamine salts (Adderall®) with a full glass of water ✓

Rose Wang (ID:113212) this answer is correct. The absorption of mixed amphetamine salts (Adderall®) is likely being reduced due to co-administration with the vitamin C in orange juice.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder**LEARNING OBJECTIVE:**

Understand the interaction that exists between some amphetamine-based stimulants and acidic/alkaline products.

BACKGROUND:

Amphetamine-based stimulants include mixed amphetamine salts (Adderall®) extended-release capsules, dextroamphetamine (Dexedrine®) immediate-release tablets and delayed-release spansules, and lisdexamfetamine (Vyvanse®) capsules and chewable tablets. With amphetamine-based stimulants, acidifying products such as vitamin C may decrease absorption and increase elimination whereas alkalinizing products such as sodium bicarbonate can increase absorption and decrease elimination. These interactions can have clinical effects by decreasing or increasing the efficacy of the medications, respectively. However, because lisdexamfetamine (Vyvanse®) is a prodrug, its absorption is not affected by acidic or alkaline products. Its excretion can still be increased in the presence of acidifying products and decreased in the presence of alkalinizing products.

RATIONALE:**Correct Answer:**

- **Take mixed amphetamine salts (Adderall®) with a full glass of water** - The absorption of mixed amphetamine salts (Adderall®) is likely being reduced due to co-administration with the vitamin C in orange juice.

Incorrect Answers:

- **Increase the dose of mixed amphetamine salts (Adderall®) by 5 mg** - PJ is already on the maximum recommended dose of mixed amphetamine salts (Adderall®) so a dose increase is not recommended.
- **Switch to dextroamphetamine (Dexedrine®) delayed-release spansules** - Switching to dextroamphetamine (Dexedrine®) delayed-release spansules will probably be ineffective since dextroamphetamine absorption is decreased by vitamin C as well.
- **Add guanfacine to mixed amphetamine salts (Adderall®)** - Combination therapy with mixed amphetamine salts (Adderall®) and guanfacine is not required at this time.

TAKEAWAY/KEY POINTS:

Acidifying products such as vitamin C may decrease absorption and increase elimination of mixed amphetamine salts (Adderall®) and dextroamphetamine (Dexedrine®) whereas alkalinizing products such as sodium bicarbonate can increase absorption and decrease elimination.

REFERENCE:

[1] CADDRA - Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

The correct answer is: Take mixed amphetamine salts (Adderall®) with a full glass of water

Question 6

ID: 50131

Correct

Flag question

Send Feedback

A nurse practitioner calls you to ask for your opinion regarding a mutual patient. HY is a 16-year-old male with a past medical history significant for psychiatric illness. Specifically, he was diagnosed with depression at the age of 14. He was prescribed an antidepressant at the time of diagnosis but has not been adherent to it for many years. HY also has a known history of substance abuse. He admits to smoking marijuana regularly and having 2-3 alcoholic drinks per day. He experimented with crystal meth a few times when he was a teenager but does not use it regularly anymore. The nurse practitioner assessed HY and believes that he has untreated ADHD. He would like to start HY on

ADHD medication, however, is concerned about his history of substance abuse.

Which of the following medications is the **LEAST** appropriate for you to recommend to treat HY's ADHD?

Select one:

- ☐ a. Methylphenidate (Concerta®) bilayer controlled-release tablets ✗
- ☒ b. Methylphenidate (Ritalin®) sustained-release tablets ✓
- ☐ c. Atomoxetine ✗
- ☐ d. Guanfacine ✗

Rose Wang (ID:113212) this answer is correct. Methylphenidate (Ritalin®) sustained-release tablets have the greatest abuse potential among the options.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-deficit hyperactivity disorder

LEARNING OBJECTIVE:

Understand the abuse potential of medications used to treat ADHD.

BACKGROUND:

All stimulants used for the treatment of ADHD have the potential to be abused or diverted. However, certain formulations of stimulants are designed to reduce the abuse potential. For example, one of the reasons why long-acting stimulants are preferred over short-acting ones is because they have a decreased propensity to be misused. Among the long-acting stimulants, methylphenidate (Concerta®) tablets are especially difficult to be manipulated (i.e. crushed or chewed). This is because Concerta® has a unique osmotic release oral delivery system (OROS) consisting of an immediate-release overcoat and controlled-release undercoat. Other short- and long-acting stimulants can be crushed, opened, or chewed, providing an opportunity for abuse. Non-stimulants, such as atomoxetine and guanfacine, have no known potential for abuse and are recommended for the treatment of ADHD in patients with comorbid substance abuse disorder and/or depression.

RATIONALE:

Correct Answer:

- **Methylphenidate (Ritalin®) sustained-release tablets** - Methylphenidate (Ritalin®) sustained-release tablets have the greatest abuse potential among the options.

Incorrect Answers:

- **Methylphenidate (Concerta®) bilayer controlled-release tablets** - Methylphenidate (Concerta®) tablets are difficult to manipulate (i.e. crush) and therefore have lower abuse potential.
- **Atomoxetine** - Atomoxetine is recommended for the treatment of ADHD in patients with a history of substance abuse because it has no known potential for abuse.
- **Guanfacine** - Guanfacine is recommended for the treatment of ADHD in patients with a history of substance abuse because it has no known potential for abuse.

TAKEAWAY/KEY POINTS:

Non-stimulants, such as atomoxetine and guanfacine, have no known potential for abuse and are recommended for the treatment of ADHD in patients with comorbid substance abuse disorder and/or depression. Methylphenidate (Concerta®) is also difficult to be manipulated (i.e. crushed or chewed).

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Methylphenidate (Ritalin®) sustained-release tablets

Question 7

ID: 50136

Incorrect

Flag question

Send Feedback

Which of the following drugs is the safest to co-administer with atomoxetine?

Select one:

- ☐ a. Paroxetine ✗
- ☐ b. Fluoxetine ✗
- ☐ c. Linezolid ✗
- ☒ d. Sertraline ✓

Rose Wang (ID:113212) this answer is incorrect. Linezolid is a mild monoamine oxidase inhibitor (MAOI) and cannot be co-administered with atomoxetine.

Incorrect

Marks for this submission: 0.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder

LEARNING OBJECTIVE:

Identify drug interactions associated with atomoxetine.

BACKGROUND:

Atomoxetine (Strattera®) is a second-line treatment option for ADHD. Atomoxetine acts on the catecholamine signaling pathway as a selective norepinephrine reuptake inhibitor and is indicated in children 6 years and older. Contraindications for atomoxetine use include monoamine oxidase inhibitor (MAOI) use within 14 days, narrow-angle glaucoma, untreated hyperthyroidism, moderate-to-severe hypertension, pheochromocytoma, symptomatic cardiovascular disease, severe cardiovascular disorders, and advanced atherosclerosis. Atomoxetine is a major substrate of CYP 2D6 and a minor substrate of CYP 2C19. Strong CYP 2D6 inhibitors such as paroxetine and fluoxetine can increase atomoxetine levels, therefore, alternative therapy should be considered. Combinations with monoamine oxidase inhibitors (MAOI) such as phenelzine, tranylcypromine, moclobemide, and linezolid should be avoided due to potential increases in the neurotoxic effects of atomoxetine. Tricyclic antidepressants (TCA) and atomoxetine combinations are generally not recommended due to CYP 2D6 inhibition.

RATIONALE:**Correct Answer:**

- **Sertraline** - Sertraline does not significantly inhibit CYP 2D6 and therefore can be safely co-administered with atomoxetine.

Incorrect Answers:

- **Paroxetine** - Paroxetine is a strong CYP 2D6 inhibitor and cannot be co-administered with atomoxetine.
- **Fluoxetine** - Fluoxetine is a strong CYP 2D6 inhibitor and cannot be co-administered with atomoxetine.
- **Linezolid** - Linezolid is a mild monoamine oxidase inhibitor (MAOI) and cannot be co-administered with atomoxetine.

TAKEAWAY/KEY POINTS:

Atomoxetine is a CYP 2D6 substrate and its use should be avoided with strong CYP 2D6 inhibitors (e.g., paroxetine, fluoxetine). Atomoxetine is contraindicated within 14 days of monoamine oxidase inhibitor use (MAOI), including phenelzine, tranylcypromine, moclobemide, and linezolid.

REFERENCE:

[1] CADDRA - Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

The correct answer is: Sertraline

Question 8

ID: 50140

Incorrect

Flag question

Send Feedback

All of the following drugs may decrease serum levels of guanfacine, **EXCEPT**:

Select one:

- ☐ a. Fluconazole ✓
- ☒ b. Rifampin ✗
- ☐ c. Carbamazepine ✗
- ☐ d. Phenobarbital ✗

Rose Wang (ID:113212) this answer is incorrect. Rifampin is a strong CYP 3A4 inducer that can decrease serum levels of guanfacine.

Incorrect

Marks for this submission: 0.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorder

LEARNING OBJECTIVE:

Identify drug interactions associated with guanfacine.

BACKGROUND:

Guanfacine (Intuniv XR®) is a second-line treatment option for ADHD. Guanfacine is an alpha-2-adrenergic agonist which stimulates norepinephrine transmission in the prefrontal cortex to improve attention and memory. It is indicated for children and adolescents between 6 and 17 years of age with ADHD, not adults. Guanfacine should be used with caution with agents that can decrease heart rate and blood pressure or that can prolong the QTc interval (e.g. domperidone, haloperidol, atomoxetine). Guanfacine should also not be taken with high-fat foods because this can lead to increased serum drug levels and drug exposure. In addition, guanfacine may also be prone to CYP-mediated drug interactions as it is a major substrate of CYP 3A4. Guanfacine serum levels may be decreased when taken with CYP 3A4 inducers (e.g. rifampin, carbamazepine, phenobarbital, phenytoin, St. John's wort) or increased when taken with CYP 3A4 inhibitors (e.g. fluconazole).

RATIONALE:**Correct Answer:**

- **Fluconazole** - Fluconazole is a strong CYP 3A4 inhibitor that can increase serum levels of guanfacine.

Incorrect Answers:

- **Rifampin** - Rifampin is a strong CYP 3A4 inducer that can decrease serum levels of guanfacine.
- **Carbamazepine** - Carbamazepine is a strong CYP 3A4 inducer that can decrease serum levels of guanfacine.
- **Phenobarbital** - Phenobarbital is a strong CYP 3A4 inducer that can decrease serum levels of guanfacine.

TAKEAWAY/KEY POINTS:

Guanfacine serum levels may be decreased when taken with CYP 3A4 inducers (e.g. rifampin, carbamazepine, phenobarbital, phenytoin, St. John's wort) or increased when taken with CYP 3A4 inhibitors (e.g. fluconazole).

REFERENCE:

[1] CADDRA - Canadian ADHD Resource Alliance: Canadian ADHD Practice Guidelines, 4.1 Edition, Toronto ON; CADDRA, 2020.

The correct answer is: Fluconazole

Question 9

ID: 50146

Correct

Flag question

Send Feedback

TY is a 10-year-old male who visits your clinic with his parents for his monthly follow-up appointment. TY has been taking methylphenidate (Foquest®) 40 mg PO daily in the morning for the past 6 months. His ADHD symptoms have been well-controlled both at home and at school and his parents and teachers do not have any complaints. He has reported that he often does not feel hungry and his parents have been trying to feed him large meals for breakfast and supper when possible. With the summer holidays coming up, TY's parents would like to ask you about the possibility of stopping TY's medication. They were hoping that you could provide them with more information about drug holidays from stimulants.

Which of the following statements about drug holidays from stimulants is **NOT** appropriate for you to mention to TY's parents?

Select one:

- ☐ Drug holidays should be trialed during times of low stress (e.g. summer holidays) ✖
- ☐ Stimulants must be tapered and **NOT** stopped abruptly ✖
- ☒ Every patient with ADHD taking a stimulant should be considered for a drug holiday ✔
- ☐ Stimulant therapy should be reassessed at least once a year ✖

Rose Wang (ID:113212) this answer is correct. Drug holidays are not recommended in patients with moderate-severe ADHD symptoms who are well-controlled while on medication.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorders

LEARNING OBJECTIVE:

Provide patient counselling about drug holidays from stimulants.

BACKGROUND:

Drug holidays are done on a case-by-case basis when the adverse effects of a stimulant (e.g., significant weight/height suppression) outweigh the benefits. Sometimes ADHD is not a lifelong condition and symptoms may disappear in some individuals. To assess whether a patient still requires medication, a drug holiday can be trialed. Drug holidays are when patients wean off their ADHD medication for a defined period of time to assess the benefit of the medication. Typically, drug holidays are done during times of low stress (i.e., summer holidays) when the risk of stopping medication (e.g., decreased academic performance) is low. When stopping stimulants, taper the stimulant dose (do not abruptly stop the medication). Drug holidays are not recommended in patients with moderate-severe ADHD symptoms who are well-controlled while on medication. ADHD treatment should be reassessed at least annually and this is commonly done during the summer break.

RATIONALE:

Correct Answer:

- **Every patient with ADHD taking a stimulant should be considered for a drug holiday** - Drug holidays are not recommended in patients with moderate-severe ADHD symptoms who are well-controlled while on medication.

Incorrect Answers:

- **Drug holidays should be trialed during times of low stress (e.g. summer holidays)** - Drug holidays should be trialed during times of low stress (e.g., summer holidays) when the risk of stopping medication (e.g., decreased academic performance) is low.
- **Stimulants must be tapered and NOT stopped abruptly** - Stimulants must be tapered and not stopped abruptly to prevent withdrawal effects.

- **Stimulant therapy should be reassessed at least once a year** - ADHD therapy should be reassessed at least annually and this is commonly done during the summer break.

TAKEAWAY/KEY POINTS:

Drug holidays are done during times of low stress (i.e., summer holidays) when the risk of stopping medication (e.g., decreased academic performance) is low. When stopping stimulants, taper the stimulant dose (do not abruptly stop the medication). Drug holidays are not recommended in patients with moderate-severe ADHD symptoms who are well-controlled while on medication. ADHD treatment should be reassessed at least annually and this is commonly done during the summer break.

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Every patient with ADHD taking a stimulant should be considered for a drug holiday

Question 10

ID: 50150

Correct

Flag question

Send Feedback

JK is a 7-year-old male taking methylphenidate (Concerta®) 36 mg PO daily at 7 am for the past 6 months. According to his teacher, JK has been doing well in class (i.e. follows instructions, does not speak out of turn, does not distract his classmates). He has tolerated the medication well with a stable weight and no psychiatric or cardiovascular symptoms. However, JK's parents are concerned since their child is NOT able to focus when doing his homework in the evening. They have tried starting the homework earlier but this is usually not possible because JK is involved in extracurricular activities on weeknights right after school. They get home at 6 pm and JK has dinner, then starts his homework at 7 pm. He goes to bed by 9 pm.

The most appropriate recommendation to suggest to JK's parents is:

Select one:

- ☐ a. Increase methylphenidate (Concerta®) to 54 mg daily ✗
- ☐ b. Change therapy to methylphenidate (Biphentin®) 40 mg daily ✗
- ☒ c. Add methylphenidate immediate-release (Ritalin®) 5 mg to be taken in the early evening at 4 pm ✓
- ☐ d. Add methylphenidate (Concerta®) 18 mg in the early evening at 4 pm ✗

Rose Wang (ID:113212) this answer is correct. Adding a short-acting stimulant in the early evening at 4 pm (no later to avoid insomnia) can be helpful for managing the wearing-off effect of a long-acting stimulant.

Correct

Marks for this submission: 1.0/1.0.

TOPIC: Attention-Deficit Hyperactivity Disorders

LEARNING OBJECTIVE:

Understand how to manage ADHD symptoms that occur later in the day.

BACKGROUND:

Attention-Deficit Hyperactivity Disorder (ADHD) is a common neuropsychiatric disorder that often initially presents in children and can persist into adulthood. It is characterized by impulsiveness, hyperactivity, and inattention. The pathophysiology is thought to be related to a dysfunction of dopamine and norepinephrine pathways in the brain. Pharmacological therapy includes the use of stimulants and/or adjunctive therapies (e.g., norepinephrine reuptake inhibitors, alpha-2-adrenergic agonists). Stimulants come in various formulations such as immediate-release, delayed-release, sustained-release, extended-release, and controlled-release. Short- to intermediate-acting formulations such as immediate-release, delayed-release, and sustained-release formulations include dextroamphetamine immediate-release tablets (Dexedrine®), dextroamphetamine delayed-release spansules (Dexedrine®), methylphenidate immediate-release tablets (Ritalin®), and methylphenidate sustained-release tablets (Ritalin SR®). These agents have a duration of action ranging from 3-8 hours. Long-acting formulations such as extended-release and controlled-release formulations include mixed amphetamine salts extended-release capsules (Adderall®), methylphenidate controlled-release capsules (Biphentin®, Focquest®), methylphenidate controlled-release tablets (Concerta®), and lisdexamfetamine capsules and chewable tablets (Vyvanse®). These agents have a duration of action ranging from 10-16 hours. Long-acting formulations are considered to be first-line options for the treatment of ADHD due to once-daily dosing (which increases adherence), a reduction in abuse potential, and a reduction in rebound hyperactivity. Sometimes, if patients need a longer duration of action than what a morning dose of a long-acting formulation can provide, short-acting formulations can be added as well. Short-acting formulations must not be added too late in the day to avoid insomnia (for example, not past 4 pm). Adding a short-acting formulation can provide extra coverage in the case of a wearing-off effect of a long-acting formulation.

RATIONALE:

Correct Answer:

- **Add methylphenidate immediate-release (Ritalin®) 5 mg to be taken in the early evening at 4 pm** - Adding a short-acting stimulant in the early evening at 4 pm (no later to avoid insomnia) can be helpful for managing the wearing-off effect of a long-acting stimulant.

Incorrect Answers:

- **Increase methylphenidate (Concerta®) to 54 mg daily** - Increasing the morning dose is not required since JK is functioning well throughout the day. JK is experiencing wearing off effects from the medication.

- **Change therapy to methylphenidate (Biphentin®) 40 mg daily** - The duration of action of methylphenidate (Biphentin®) is similar (10-12 hours) to the existing therapy of methylphenidate (Concerta®).
- **Add methylphenidate (Concerta®) 18 mg in the early evening at 4 pm** - Adding methylphenidate (Concerta®) in the early evening at 4 pm can cause insomnia due to its long duration of action (12 hours).

TAKEAWAY/KEY POINTS:

If patients need a longer duration of action than what a morning dose of a long-acting formulation can provide, short-acting formulations can be added as well. Short-acting formulations must not be added too late in the day to avoid insomnia (for example, not past 4 pm). Adding a short-acting formulation can provide extra coverage in the case of a wearing-off effect of a long-acting formulation.

REFERENCE:

[1] Canadian Attention Deficit Hyperactivity Disorder Resource Alliance (CADDRA). Canadian ADHD practice guidelines. 4th ed. Toronto (ON): CADDRA; 2018.

The correct answer is: Add methylphenidate immediate-release (Ritalin®) 5 mg to be taken in the early evening at 4 pm

[Finish review](#)